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ABSTRACT

The Impact Monster is a skit designed to teach minimum impact techniques and used as a wilderness education tool by federal land management agencies. During the skit, which features role playing by the audience, an "impact monster" demonstrates inappropriate behavior in a wilderness area and a "good guy" corrects the behavior. The skit is part of a K-8 curriculum to teach land ethics and Leave-No-Trace behaviors, but is often used independently in other wilderness education programs with various age groups. An evaluation survey was completed by 55 employees of the Forest Service and other federal land management agencies. Results indicate that the Impact Monster remains a widely used wilderness education tool, rated good to excellent by most respondents. Using a figure clothed in bright colors as the Impact Monster was considered an effective program element. Students in grades 3-6 were considered the most appropriate recipients of the program. Problems experienced included children fearing the gun used in the skit, wilderness educators burning out on presenting the program, and students in grades 6-12 identifying too strongly with the Impact Monster. Frequent suggestions for program improvement included avoiding stereotypes, being sensitive to cultural differences, acquiring props, emphasizing positive behavior, maintaining program flexibility, and developing evaluation methods. Proposed behavioral objectives should focus on Leave-No-Trace principles. (Contains 10 data tables.) (SV)

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Wilderness Educators' Evaluation of the Impact Monster Program

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Alan E. Watson

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Abstract

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Since its development by Jim Bradley in the late 1970s, the Impact Monster, a wilderness education skit designed to teach minimum impact techniques, has been used as a wilderness education tool by federal land management agencies. This paper reports on an evaluation of the perceived effectiveness of the Impact Monster program and its content. Results indicate that the Impact Monster program remains a widely used wilderness education tool to teach appropriate wilderness behavior. In addition, the program is rated good to excellent by most study participants. Most participants considered a figure clothed in bright colors an effective program element. Fourth, fifth, third, and sixth grade children, respectively, were considered the most appropriate recipients of the Impact Monster program. Problems experienced with the program included children fearing the gun used in the skit, wilderness educators tired of presenting the program, and sixth to eighth grades and high school students identifying too strongly with the Impact Monster. The most frequent suggestions to improve the program were: avoid stereotypes, be sensitive to cultural differences, acquistion of props, emphasize positive behavior, maintain program flexibility, and develop evaluation methods. Behavioral objectives established for the program should focus on Leave No Trace principles, which establish a land ethic that promotes appropriate behavior, recognizes impacts, and increases wilderness knowledge.

Keywords: low-impact, recreation, public education, children, school programs, Leave No Trace

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The authors dedicate this research to the memory of Jim Bradley, originator of the Impact Monster skit.

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Cover photo: *Moccasin Lake, Eagle Cap Wilderness, Oregon. Photo by Dave Spildie, Aldo Leopold Wilderness Research Institute.*

Inset photo: *The good guy, often a uniformed ranger, corrects damage created by the Impact Monster. Photo by Pam Hamp.*

Wilderness Educators' Evaluation of the Impact Monster Program

William W. Hendricks and Alan E. Watson

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Introduction

An increased focus on wilderness education is occurring within federal land management agencies. During the past decade, wilderness managers have increasingly used school programs as a wilderness education vehicle. Wilderness education programs may assist in management of wilderness area use and in influencing wilderness user behavior (Doucette and Cole 1993).

The Arthur Carhart National Wilderness Training Center, an interagency center formulated to enhance wilderness stewardship, has distributed nationally a kindergarten through eighth grade (K-8) curriculum, designed to teach land ethics and appropriate wilderness behavior. One activity within the curriculum is the Impact Monster program. The Impact Monster, a wilderness education skit designed to teach minimum impact techniques (Hansen 1990), has been used by USDA Forest Service wilderness rangers for many years (Ham 1992). Bureau of Land Management and National Park Service personnel have also used the program, although less extensively. During the skit, an "impact monster" demonstrates inappropriate behavior in a wilderness area and a "good guy" corrects the behavior. For example, the "impact monster" carves initials in a sign, pollutes a stream, and cuts down a tree for firewood. The "good guy" tells the "impact monster" what has been done incorrectly and demonstrates more appropriate behavior.

Although wilderness educators have conducted personal evaluations of the Impact Monster program, a systematic, comprehensive, formal program evaluation has not been conducted. In informal discussions with wilderness educators and a focus group session at the 1995 Wilderness Education Working Group Session in Salt Lake City, UT, the concerns of

An Impact Monster demonstrates inappropriate behavior by bathing in a stream, impacting the frog and snake. Photo by Pam Hamp.

wilderness educators regarding the program included: appropriate recipient age levels, appropriate identities for the "good guy" and "impact monster," and needed program improvements to more effectively influence wilderness visitor behavior.

The study reported here was conducted to evaluate the perceived effectiveness of the Impact Monster program and its content.

Research questions asked were:

- To what extent do wilderness educators support the Impact Monster skit as an effective wilderness education program?
- What elements of the Impact Monster skit are considered effective by wilderness educators?
- What age groups are considered the most appropriate audience for the Impact Monster program?
- What are the problem areas with the Impact Monster program and how can it be improved?
- What measurable behavioral objectives should be developed for the program?

Methods

An evaluation was conducted of Forest Service and other government and private sector personnel who have used the Impact Monster program as a wilderness education tool to determine their perceptions of program effectiveness. A survey was tested with personnel from the Arthur Carhart National Wilderness Training Center and the Wilderness Education Project, an interagency partnership between 5 national forests, 3 Bureau of Land Management resource areas, and 3 national parks in the central and southern Sierra Nevada Mountains. Based on feedback, a "don't know" category was added to the Likert-type response scale items on the instrument. The survey provided information about:

- program versions and modifications,
- number of times the person had presented the program,
- perceived effectiveness of program components,
- perceptions of appropriate ages for the program,
- participant roles used,
- presentation locations,
- problems that have occurred in presenting the program,
- perceived program objectives,
- introduction content (Wilderness Act, land ethic, etc.),
- program adaptations for specific ecosystems, forests,
- program evaluation methods,
- suggestions for program improvement.

Attempts were made to contact individuals who had presented or were very familiar with the Impact Monster program. These people were identified:

- from a list of contacts developed when the research project was formulated
- from a list of participants at the Wilderness Education Working Group Session in Salt Lake City, UT, in October 1995 (participants were from multiple agencies, academia, and private consulting firms who provide wilderness education to the American public),
- from response to a request by the Assistant Director of the Arthur Carhart National Wilderness Training Center for study participants on the Forest Service electronic mail system;
- by asking survey respondents to provide the names and addresses of other individuals they knew who had presented the program.

Beginning in June 1996, subjects were mailed a cover letter and a survey with a self-addressed, stamped, return envelope. One week

later, a reminder postcard was sent to all subjects. A second questionnaire was sent to nonrespondents 3 weeks after the postcard. Due to the request for additional subjects on the questionnaire, data collection continued through October 1996.

Results

Fifty-five of 83 subjects (66.26 %) responded to the questionnaire. Respondents to the survey were primarily Forest Service employees (n=48). The remaining 7 respondents were employed by the Bureau of Land Management (n=2), the private sector (n=2), the National Park Service (n=1), an interagency funded position (n=1), and a National Forest Association (n=1). The high proportion of Forest Service employees may be due to the procedures used to contact subjects for the study rather than a low response rate from other groups.

Descriptive Program Information

Respondents were asked a few questions regarding their overall experience with the Impact Monster program and were classified as having presented the program 1 to 10 times (n=15), 11 to 20 times (n=14), or more than 40 times (n=13). Seven respondents had presented the program 21 to 30 times, 5 had only observed it, and 1 had presented it 31 to 40 times. Eleven respondents did not currently use the program, 14 rarely used it, 19 sometimes used it, and 11 often used it.

The Impact Monster program has been presented in a variety of settings and in various lengths. Among the most common presentation locations are: schools, Forest Service training sessions, campfire programs, Wilderness Box teacher training workshops, and to cub/boy scouts (table 1). The suggested length of the Impact Monster program by most respondents was 16 to 30 minutes (n=29). Others felt it was best presented under 15 minutes (n=10), 31 to 45 minutes (n=8), and 46 to 60 minutes (n=7).

The Impact Monster often is dressed in bright clothing. Photo by Pam Hamp.

Commonly, children play various roles during the Impact Monster skit. Forty-eight (94.1 percent) of the respondents use students during the skit; 3 do not (5.9 %). Respondents were asked to indicate the roles that children play during the skit (table 2). The most frequent roles were tree, rock, snake, sign, frog, hawk, fish, and squirrel.

Two skits have evolved during the 1980s and 1990s, the good guy/bad guy and the dream sequence. The good guy/bad guy skit was predominantly used by the respondents (table 3). However, adaptations and revisions in the program have occurred. Thirty-one (58.5%) of the respondents have adapted the program for a specific ecosystem, forest, or area. Most adaptations were made to relate the

skit to overall ecosystems or specific site characteristics such as the use of recreational packstock, unique archeological resources, sensitive soils, proper food storage, camping in bear country, local flora and fauna, and water scarcity. Thirty-three comments were related to specific site characteristics and 20 represented regional ecosystems. Three response examples are:

- Adapted the skit to Southwest deserts by changing characters to represent local animals (kit fox, gila monster, fringe toed lizards, saguaro cactus, etc.).
- Based the Impact Monster story around the local area using common trail names, lakes, and wildlife specific to this wilderness.
- Redesigned the skit for more than 30 different ecosystems.

Other changes to the program have occurred to fit the needs of cultural, social, and environ-

Table 1. Ranking of Impact Monster program presentation locations.

Location	Frequency	Percent	Rank
Schools	43	78.18	1
Forest Service training session	34	61.81	2
Campfire programs	25	45.45	3
Wilderness Box teacher training workshops	19	34.54	4
Cub/boy scouts	19	34.54	4
Residential environmental education camps	16	29.10	6
Girl scouts/campfires	14	25.45	7
Church	12	21.81	8
Leave No Trace training courses	11	20.00	9
Local fairs	10	18.18	10
Mall/shopping centers	5	9.09	11
YMCAs/YWCAs	4	7.27	12
State Park amphitheater	2	3.63	13
Wilderness day event	2	13	
National Park Service trails day event	2	3.63	13
Elks Club father/son event	1	1.81	16
High-use recreation area	1	1.81	16
Library children's program	1	1.81	16
Regional family meeting	1	1.81	16
Interagency sessions	1	1.81	16
international sessions	1	1.81	16
Workshops	1	1.81	16
Rocky Mountain Elk Foundation	1	1.81	16
Yauapai/Apache summer youth program	1	1.81	16

Note: Subjects checked all that applied.

Table 2. Roles that children commonly play during the Impact Monster skit.

Role	Frequency	Percent	Rank
Tree	45	81.8	1
Rock	38	69.1	2
Snake	35	63.6	3
Sign	35	63.6	3
Frog	32	58.2	5
Hawk	30	54.5	6
Fish	27	49.1	7
Squirrel	25	45.5	8
Eagle	19	34.5	9
River	17	30.9	10
Flowers	17	30.9	10
Snag	16	29.1	12
Impact Monster catchers	12	21.8	13
Elk	8	14.5	14
Horse	4	7.3	15
Lake	3	5.5	16
Pictograph	3	5.5	16
Archeological site	3	5.5	16
Coyote	3	5.5	16
Deer	2	3.6	20
Endangered plant	2	3.6	20
Wolf	2	3.6	20
Tent	2	3.6	20
Junior ranger	2	3.6	20
Cactus	2	3.6	20
Rat	2	3.6	20
Birds	2	3.6	20
Butterfly	2	3.6	20
Single responses	12	21.8	

Note: Subjects checked all that applied.

mental factors in the vicinity of a specific forest or natural resources area. In addition to the adaptations described above, respondents indicated other changes that they were familiar with or had implemented. These changes were classified into 4 categories. These categories, with examples, are:

1. Prop changes and improvements (n=6)
   - Using a sawhorse in areas with high stock use.
   - Removing the gun and using a wrist rocket or rock.
2. Role changes (n=7)
   - Using students as Junior Rangers to indicate improper practices and to demonstrate proper practices.
   - Humanizing the bad guy as a dinosaur, which eliminated any stereotyping of humans.
3. Skit content changes (n=22)
   - Not glorifying or ridiculing the bad guy.
   - Modeling only positive behaviors and either providing or soliciting rationale for each behavior or action.
4. Program facilitation (n=6)
   - With older children, presenting the skit then dividing them into groups, and assigning them each an issue (such as campfires) to determine a way to accomplish the Leave No Trace goal. The solution is then shared with the entire group.
   - Using flip charts to foster audience involvement before skit presentation.

Table 3. Impact Monster skit versions.

Version	Frequency	Percent	Rank
Good guy/bad guy	50	92.6	1
Bad guy	6	11.1	2
Dream sequence	4	7.4	3
Wilderness ranger	2	3.7	4
Combination good/bad guy/dream sequence	2	3.7	4
Dude	1	1.8	6
Junior ranger and prompt audience	1	1.8	6
Compare impacts	1	1.8	6
Developed own skit	1	1.8	6
Ignorant hiker becomes enlightened by Leave No Trace user	1	1.8	6

Note: N = 54

Respondents were also asked to describe their program introduction (table 4). The most frequent introduction content included a wilderness definition, an explanation of wilderness values or a land use ethic, the Wilderness Act, and impact awareness or Leave No Trace principles. A few respondents indicated that

Table 4. Impact Monster program introduction.

Content	Frequency	Percent	Rank
Wilderness definition	31	58.5	1
Wilderness values/ land use ethic	28	52.8	2
Wilderness Act	15	28.8	3
Impact awareness principles	14	26.9	4
Introduce selves	12	23.1	5
Leave No Trace principles	11	21.1	6
Protected areas	6	11.3	7
Proper behavior	5	9.4	8
Ecosystems	4	7.5	9
Wilderness Box lessons	3	5.7	10
Wilderness history	3	5.7	10
Keep Wilderness Wild	2	3.8	12
Maps	2	3.8	12
Relate to personal experience	2	3.8	12
Web of life	2	3.8	12
Recreational uses	2	3.8	12
Differences in agencies	2	3.8	12
Role play training/ assignments	2	3.8	12
Single responses	13	26.4	

Note: N = 53

their introduction depends on participant knowledge, age, time allotted, and audience size.

Effectiveness

In addition to the above descriptive information, respondents evaluated the effectiveness of specific program elements and audience appropriateness. The program was rated as an excellent tool for teaching wilderness education by 9 respondents (16.4 %), 22 (40 %) considered it very good, and 13 (23.6 %) rated it good (table 5).

Of the program elements that were evaluated (table 6), an Impact Monster in bright colored clothing had the highest mean score (4.2). Other highly effective elements were a wilderness user as the good guy (4.13), a uniformed ranger as the good guy (4.1), an audience peer as the good guy (4.07), and a wilderness user couple as the good guys (4). The use of music and a masked Impact Monster were among the lowest scores. Respondents considered the program most effective for fourth (4.22), fifth (4.16), third (4), and sixth grades (3.98) (table 7).

Table 5. Overall effectiveness of the Impact Monster program.

Rating	Frequency	Percent
Excellent	9	16.4
Very Good	22	40.0
Good	13	23.6
Fair	8	14.5
Poor	3	5.5

Problems

Seriousness of specific problems with the Impact Monster skit, standardized somewhat to include a brightly clothed monster, were rated on a 5-point Likert-type scale (table 8). Problems with the highest mean scores were children being afraid of the gun used in the skit (2.94), wilderness educators feeling "burned out" on the program (2.92), children in high

Table 6. Element effectiveness of the Impact Monster program.

Program element	Mean	Standard deviation	N	Don't know
Bright colored clothing Impact Monster	4.20	0.89	51	1
Wilderness user good guy	4.13	0.70	48	2
Uniformed ranger good guy	4.10	0.98	49	0
Audience peer good guy	4.07	0.86	43	6
Wilderness user couple good guys	4.00	0.70	42	7
Incentives to encourage low impact behavior	3.95	0.90	40	9
Wilderness user Impact Monster	3.49	1.16	43	6
Trash covered Impact Monster	3.29	1.15	42	8
Rap music played by Impact Monster	3.11	1.54	42	5
Country music played by Impact Monster	2.46	1.29	39	9
Old backcountry horseman Impact Monster	2.07	1.19	41	8
Country western geek Impact Monster	2.05	1.18	40	9
Classical music played by Impact Monster	2.00	1.04	38	10
White-faced mask Impact Monster	1.95	1.05	39	10

Note: A 5-point scale was used: 1 (not effective) to 5 (very effective). A "don't know" category was included for each item.

Table 7. Impact Monster program effectiveness by grade level.

Group	Mean	Standard deviation	N	Don't know
Fourth grade	4.22	0.68	50	3
Fifth grade	4.16	0.85	49	4
Third grade	4.00	0.90	50	3
Sixth grade	3.98	1.02	48	5
Mixed adults-children	3.82	1.12	50	3
Mixed elementary grades	3.78	0.89	46	6
Second grade	3.63	1.16	48	5
Seventh grade	3.20	1.15	46	7
First grade	3.17	1.22	47	5
Adults	3.16	1.22	50	3
Kindergarten	2.89	1.30	44	8
Eighth grade	2.72	1.19	46	7
High School	2.69	1.24	48	5

Note: A 5-point scale was used: 1 (not effective) to 5 (very effective). A "don't know" category was included for each item.

school identifying with the Impact Monster (2.91), and children in grades 6 through 8 identifying with the Impact Monster (2.85). Children seeing a uniformed ranger as a negative authority figure, adults identifying with the Impact Monster, or children fearing a uniformed ranger were problems with the lowest mean scores. A few additional problems were mentioned by several educators (examples are included):

1. Oriented toward children's behaviors (n=9)
   - Teachers delegating the class to the presenters often encourages misbehavior.
2. Acquisition or funding for quality props (n=3)
   - Poor props due to a lack of funding.
3. The message of the skit being lost in the process (n=3)

Table 8. Specific problems identified with Impact Monster programs that incorporated a brightly clothed monster.

Problems	Mean	Standard deviation	N	Don't know
Children afraid of gun	2.94	1.58	36	14
Wilderness educators "burned out"	2.92	1.26	49	4
High school students identify with Monster	2.91	1.41	44	8
Grades 6 through 8 identify with Monster	2.85	1.37	46	7
With good/bad guy behavior, child control is a problem	2.65	1.16	49	3
Grades K through 2 identify with Monster	2.55	1.35	44	9
Grades 3 through 5 identify with Monster	2.45	1.23	49	4
Stereotypes users who dress like Monster	2.45	1.02	49	3
Difficult to get all involved	2.43	1.12	51	1
Message conflicts with parent's career	2.41	1.13	51	2
Difficult to maintain child attention for entire program	2.36	1.19	50	2
Program encourages cultural barriers	2.18	1.21	44	8
Children fear the Monster	2.07	1.08	46	7
Uniformed ranger seen as negative authority figure	2.00	1.09	50	3
Adults identify with Monster	1.98	0.94	50	2
Children fear uniformed ranger	1.65	0.89	48	6

Note: A 5-point scale was used: 1 (not a problem) to 5 (serious problem). A "don't know" category was included for each item.

- Thinking of the skit as entertainment obscures the message.

4. Having an appropriate setting for the skit (n=3)
   - A non-classroom setting can be difficult.

Evaluation

Respondents were asked to describe the evaluation methods they use to assess program effectiveness (table 9). Although informal methods were the most frequently used, 20 (37 %) of the respondents used questionnaires that were completed by teachers in the audience.

Behavioral Objectives

The Impact Monster program was adapted to Leave No Trace principles and objectives in the K-8 Wilderness and Land Ethic Curriculum as an activity within the Leave No Trace lesson. However, the skit is often used as an independent wilderness education program separate from the Leave No Trace curriculum, although behavioral objectives have not been developed specifically for it. Therefore, one item on the survey asked respondents to recommend specific, measurable, behavioral objectives that could be accomplished through the program. Although few of the responses were in a measurable, objective format, 70 comments were analyzed. Sixty-four were classified into 4 categories. These categories, with examples, are:

1. Leave No Trace principles and skills (n=41)
   - Participants able to name Leave No Trace principles/techniques.
   - Participants demonstrate an understanding of the key Leave No Trace practices on a post quiz.
2. General behavior and land ethic (n=13)
   - Participants develop a personal land ethic.
   - Children learn positive and negative basic behavior patterns that make lasting impressions.
3. Impact recognition (n=6)
   - Children identify how people can impact natural environments.

Table 9. Evaluation methods used to assess the effectiveness of the Impact Monster program.

Method	Frequency	Percent	Rank
Informal feedback from teachers	44	81.5	1
Informal personal evaluation	42	77.8	2
Informal discussions with wilderness educators	39	72.2	3
Informal feedback from participants	36	65.5	4
Observation of participants and written documentation of observations	21	38.9	5
Questionnaire completed by teachers	20	37.0	6
Questionnaire completed by participants	6	11.1	7
Research experiment of effectiveness	3	5.6	8
Letters from students	3	5.6	8
Requests for the program	2	3.7	10
Interactive/drawing evaluations	2	3.7	10

Note: N = 54. Subjects checked all that applied.

- An awareness of the effect of wilderness users on the resource and other users.

4. Wilderness knowledge (n=4)
   - Establish a framework to understand wilderness concepts.
   - Learn about the Wilderness Act.

Suggestions and Comments

At the conclusion of the survey, respondents were asked for suggestions to improve the program and about any experiences they wanted to share about the program. There were 88 improvement suggestions generated. Many of these comments were single responses. Multiple responses with the highest frequencies were:

- avoid stereotypes and recognize cultural differences (n=9),
- prop preparation and acquisition (n=8),
- emphasize positive behavior (n=7),
- develop evaluation methods (n=7),
- maintain program flexibility (n=7) (table 10).

Three individuals do not use the program and consider it ineffective because it reinforces negative behavior and entertains more than educates. However, 17 respondents commented on their positive experiences with the program including that it was an effective educational tool, a rewarding experience, and a fun program related to environmental impact.

The following are interesting single response comments from the open-ended question:

- "We are not dealing with a bad guy we are dealing with the uninformed."
- "We have had reports that children pass learned information on to their parents."
- "Key is how Impact Monster relates to audience. Will determine overall effectiveness."

Table 10. Suggestions to improve the Impact Monster program.

Suggestion	Frequency	Percent	Rank
Avoid stereotypes/recognize cultural differences	9	16.7	1
Prop preparation and acquisition	8	14.8	2
Emphasize positive behavior	7	13.0	3
Develop evaluation methods	7	13.0	3
Maintain program flexibility	7	13.0	3
Adapt to all public lands	4	7.4	6
Involve full audience	4	7.4	6
No guns or violence	4	7.4	6
Need support and funding	3	5.6	9
No cool bad guy	3	5.6	9
Use dream sequence	3	5.6	9
Use a discussion/question period conclusion	3	5.6	9
Recommendations for good guy	2	3.7	13
Consequences of inappropriate camping	2	3.7	13
Incorporate ecosystems	2	3.7	13
Incorporate skills trail	2	3.7	13
Single responses	18	33.3	

Note: N = 54

- "Share ideas of scripts with those who have been using and doing Impact Monster."
- "Need to be very careful that the presenter does not portray legal uses of wilderness as bad, such as hunting."
- "This skit has helped us develop a good partnership with local schools. We have expanded environmental education to skills trail and wilderness box partly because of success of this skit."
- "The kids have a great time with it - just can't tell if it is making a difference."

Conclusions

This overall assessment of the Impact Monster program by wilderness educators offers an indication of the program's effectiveness. Although it is not without its critics, the program continues to be widely used to teach appropriate wilderness behavior and is considered a good to excellent program by most respondents. Conclusions to the 5 research questions are below.

1. To what extent do wilderness educators support the Impact Monster skit as an effective wilderness education program?
   - 80% of the educators rated the Impact Monster good to excellent as an effective wilderness education tool.
2. What elements of the Impact Monster skit are considered effective by wilderness educators?
   - Most respondents considered a brightly clothed Impact Monster to be an effective program element. Other effective elements are various good guy versions.
3. What age groups are considered the most appropriate audience for the Impact Monster program?
   - Fourth, fifth, third, and sixth grades (in that order) are the most appropriate recipients of the Impact Monster program.
4. What are the problem areas with the Impact Monster program and how can it be improved?
   - The greatest problem areas are children being afraid of the gun, wilderness educators being "burned out" on the program, and high school and sixth to eighth grade students identifying too closely with the Impact Monster. Behavioral control, quality of props, and maintaining the message intent of the skit are other problem areas. The most frequent suggestions for improvements in the program are avoiding stereotypes and recognizing cultural differences, preparing and acquiring props, emphasizing positive behavior, maintaining program flexibility, and developing evaluation methods.
5. What measurable behavioral objectives should be developed for the program?
   - Behavioral objectives should focus on Leave No Trace principles similar to those in the K-8 Wilderness and Land Ethic Curriculum that focuses on a general land ethic promoting appropriate outdoor behavior, recognizing human impacts, and developing wilderness knowledge.

Discussion

Although grades 3 through 6 are the most appropriate audiences for the skit, there is interest by wilderness educators to continue to present the program to various age groups. If this is to continue, then versions of the skit that consider the developmental stages of targeted groups could be created for different grade levels. The variety of versions currently being

used suggests that standardized adaptations should be developed for various types of audiences.

The roles played in the skit and their respective messages should be further researched. For example, there is little difference in the mean scores for the perceived effectiveness of a wilderness user and a wilderness ranger in the good guy role. Furthermore, the rating of the brightly colored Impact Monster is much higher than that of a wilderness-user Impact Monster. Some more creative roles of the Impact Monster received low ratings, due primarily to concerns about stereotypes and cultural differences of users. Considering this, it is plausible that the brightly colored monster may encourage stereotyping.

The USDA Forest Service, as a land management agency, has developed ecosystem management strategies and objectives that influence delivery of the Impact Monster program. As one respondent stated, federal land management agencies are adapting the Impact Monster program to 30 different ecosystems. Impact Monster program content should reflect ecosystem management policy. At a minimum, the program introduction should include an ecosystem management component and should maintain flexibility to meet the needs of individual site characteristics.

Program content should also be linked more directly to Leave No Trace principles. Although low-impact skills and differentiating between appropriate and inappropriate impacts are currently components of many skit versions, use of Leave No Trace principles is not universal. A national effort could be initiated to incorporate Leave No Trace principles directly into the Impact Monster skit.

Many educators and recipients would support removal of violence and guns from the program. Incorporating more students in the skit would also be useful. This is possible through additional role playing assignments and designation of key actor roles to students.

Program planning and educational lesson plans require development of behavioral or learning objectives. As discussed, respondents mentioned 4 categories of potential behavioral objectives:

1. Leave No Trace principles,
2. General outdoor behavior and land ethic,
3. Recognizing impacts,
4. Wilderness knowledge.

Measurable objectives should be developed for each of these areas, particularly for those using the Impact Monster skit outside the larger wilderness education curriculum. For example, participants in the Impact Monster program may be asked to recall the 6 Leave No Trace principles, write a personal land ethic, identify 3 permanent and 3 non-permanent impacts, and recite 2 different wilderness definitions that were presented in a skit introduction.

Most wilderness educators conduct informal evaluations of their Impact Monster program. Suggestions for improvement include the recommendation that formal evaluation methods be provided. Reliable and valid instruments to survey teachers are needed, as well as pre-test / post-test instruments to evaluate effects on students and other program audiences. For example, one respondent asks students to demonstrate what they have learned from the program in a mock camping setting. Props for such a setting could be standardized and adapted to program behavioral objectives.

In addition to evaluation needs, program management tools are necessary. Wilderness educators need training and techniques for managing behavior problems when presenting the Impact Monster skit or when leading other wilderness education programs. Classroom management skills and suggestions for handling disruptive behaviors are needed for a variety of settings and age groups.

Although many respondents are aware of the need to recognize cultural differences, it was not determined in the survey if wilderness educators are trained to recognize and be sensitive to cultural diversity. Additional research in this area is necessary.

A final program management issue is the acquisition, maintenance, and funding of props. Survey respondents mentioned this issue as a program problem and as a suggestion for improvement. Possibly some wilderness educators are unaware of resources to obtain props, or they are unsatisfied with these props. This issue should be examined further. Suggestions for funding, acquisition, and maintenance of the props could be valuable contributors to program management. However, as one respondent pointed out, funding will need national commitment.

Although the expert sampling methods employed in this study limit generalization of the results, this evaluation may aid in increasing the applications of the Impact Monster skit and updating it to current land management practices and philosophies. After nearly 20 years, many children and adults continue to be exposed to this effective, popular wilderness education program.

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